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EXAMINER	
BUIE-HATCHER, NICOLE M	
ART UNIT	**PAPER NUMBER**
1796	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/582,238	KANENARI ET AL.	
	Examiner	Art Unit	
	NICOLE M. BUIE-HATCHER	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 November 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5-14,19 and 23-29* is/are pending in the application.

4a) Of the above claim(s) *7,14,22 and 27-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8-13,19 and 23-26* is/are rejected.

7)☒ Claim(s) *19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The amendment filed 11/18/2009 has been entered. Claims 1-3, 5-14, 19, and 22-29 remain pending. Claims 14, 22, and 27-29 were previously withdrawn.

The indicated allowability of claims 1-6, 8-13, 19, and 23-26 is withdrawn in view of a more careful consideration of Yamawaki et al. (US 4,065, 426) in view of JP 11-292978, and the newly discovered reference of Weiler (US 6,727,323 B2) and Berg et al. (US 3,929,707). Rejections based on the newly cited reference(s) follow.

Claim Objections

Claim 19 is objected to because of the following informalities: the viscosity units "mP·s" should be replaced with "mPa·s". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 19, it is unclear whether the viscosity of the mixture is before or after spray drying. For the purpose of this Office Action, the viscosity of the mixture will be treated as the viscosity before spray drying.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamawaki et al. (US 4,065,426) in view of JP 11-292978 A (see machine translation for citation) and Weiler (US 6,727,323 B2).

Regarding claims 1-3 and 5, Yamawaki et al. discloses a natural rubber latex is added with a coagulant to obtain crumbs of the rubber (C2/L39-49). A rubber latex may be mixed with an aqueous carbon black slurry (C2/L64-C3/L4). Additionally, water-soluble polymeric

materials such as polyethylenepolyamine, polyimine, polyacrylamide may be used as a coagulating assistant (C3/L21-37). In the fourth step (d), a spray dryer may be used (C5/L5-22). Since each of the components is mixed, some agitation must take place.

However, Yamawaki et al. does not disclose spray drying under an atmosphere of a shock wave generated from pulse combustion. JP '978 teaches pulse shock wave dryer of a resin powder in claim 1. JP'978 teaches the temperature is from 40-80 °C. Yamawaki et al. and JP '978 are analogous art concerned with the same field of endeavor, namely rubber crumbs with non-tackiness which may be prepared by spray drying. It would have been obvious to one of ordinary skill in the art at the time of invention to substitute the method of spray drying of Yamawaki et al. with the method as taught by JP '978, and the motivation to do so would have been as JP '978 suggests thermal energy is low temperature compared with conventional spray drying method and desiccation and powdering of the rubber is efficient [0011].

However, Yamawaki et al. does not disclose the viscosity of the polymer composition before spray drying. Weiler teaches the viscosity of an atomizing feed is less than 500 mPa·s and more preferably less than 250 mPa·s (C6/L33-38). Yamawaki et al. and Weiler are concerned with a similar technical difficulty, namely spray-drying aqueous polymer dispersions. It would have been obvious to one of ordinary skill in the art at the time of invention to use viscosity taught by Weiler for the aqueous dispersion of Yamawaki et al., and the motivation to do so would have been the viscosity range is a suitable range with a similar device. Therefore, the work or heat efficiency of the production of the polymer from the latex thereof containing the filler would be inherently improved, absent objective evidence to the contrary.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamawaki et al. (US 4,065,426) in view of JP 11-292978 A (see machine translation for citation) and Weiler (US 6,727,323 B2) as applied to claim 1 above, and further in view of Chandran et al. (US 5,842,289).

Regarding claim 6, modified Yamawaki et al. discloses a method as shown above in claim 1.

However, modified Yamawaki et al. does not disclose frequency of pulse combustion. Chandran et al. teaches a frequency of pulse combustion in a range of from about 50 to about 500 Hz (C3/L12-19). Modified Yamawaki and Chandran et al. are concerned with the same technical difficulty, namely spray drying. It would have been obvious to one of ordinary skill in the art at the time of invention to try to use the frequency as taught by Chandran et al. in a process of modified Yamawaki which is a suitable range with a similar device.

Claims 8-10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamawaki et al. (US 4,065,426) in view of JP 11-292978 A (see machine translation for citation) and Berg et al. (US 3,945,978).

Regarding claims 8-10, Yamawaki et al. discloses a natural rubber latex is added with a coagulant to obtain crumbs of the rubber (C2/L39-49). A rubber latex may be mixed with an aqueous carbon black slurry (C2/L64-C3/L4). Additionally, water-soluble polymeric materials such as polyethylenepolyamine, polyimine, polyacrylamide may be used as a coagulating assistant (C3/L21-37). In the fourth step (d), a spray dryer may be used (C5/L5-22). Since each of the components is mixed, some agitation must take place.

However, Yamawaki et al. does not disclose spray drying under an atmosphere of a shock wave generated from pulse combustion. JP '978 teaches pulse shock wave dryer of a resin powder in claim 1. JP'978 teaches the temperature is from 40-80 °C. Yamawaki et al. and JP '978 are analogous art concerned with the same field of endeavor, namely rubber crumbs with non-tackiness which may be prepared by spray drying. It would have been obvious to one of ordinary skill in the art at the time of invention to substitute the method of spray drying of Yamawaki et al. with the method as taught by JP '978, and the motivation to do so would have been as JP '978 suggests thermal energy is low temperature compared with conventional spray drying method and desiccation and powdering of the rubber is efficient [0011].

However, Yamawaki et al. does not disclose the amount of surfactant. Berg teaches the amount of carbon black is from 40-500% by weight based on the solid rubber (C3/L57-C4/L5). The emulsifiers are used in quantities of 0.05 – 2% by weight based on the rubber solution (C5/L5-10). In Examples 1 and 2, a 10% solution of the rubber is used. (Therefore the amount of the emulsifier based upon the weight of carbon black is from 0.5-20% by weight which significantly overlaps the claimed range). Berg et al. further teaches the fillers are dispersed in water in the presence of the emulsifiers before adding to the rubber latex (C4/L42-44). The emulsifiers are amine surfactants (C4/L56-C5/L4). Yamawaki et al. and Berg et al. are analogous art concerned with the same field of endeavor, namely non-tackiness rubber crumbs from rubber latex and carbon black which may be prepared by spray drying. It would have been obvious to one of ordinary skill in the art at the time of invention to add the surfactant of Berg et al. in the method of Yamawaki et al., and the motivation to do so would have been as Berg et al. suggests improve storage properties (C3/L19-21).

Regarding claim 13, Yamawaki et al. discloses zinc oxide, stearic acid, sulfur and other additives may be added to the rubber latex (C3/L18-20).

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamawaki et al. (US 4,065,426) in view of JP 11-292978 A (see machine translation for citation) and Berg et al. (US 3,945,978) as applied to claim 10 above, and further in view of Weiler (US 6,727,323 B2).

Regarding claim 11, modified Yamawaki et al. discloses a method as shown above in claim 10.

However, modified Yamawaki et al. does not disclose the viscosity of the polymer composition before spray drying. Weiler teaches the viscosity of an atomizing feed is less than 500 mPa·s and more preferably less than 250 mPa·s (C6/L33-38). Modified Yamawaki et al. and Weiler are analogous art concerned with the same field of endeavor, namely spray-drying aqueous polymer dispersions. It would have been obvious to one of ordinary skill in the art at the time of invention to use viscosity taught by Weiler for the aqueous dispersion of modified Yamawaki et al., and the motivation to do so would have been the viscosity range is a suitable range with a similar device. Therefore, the work or heat efficiency of the production of the polymer from the latex thereof containing the filler would be inherently improved, absent objective evidence to the contrary.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamawaki et al. (US 4,065,426) in view of JP 11-292978 A (see machine translation for citation) and Berg et al. (US 3,945,978) as applied to claim 8 above, and further in view of Chandran et al. (US 5,842,289).

Regarding claim 12, modified Yamawaki et al. discloses a method as shown above in claim 8.

However, modified Yamawaki et al. does not disclose frequency of pulse combustion. Chandran et al. teaches a frequency of pulse combustion in a range of from about 50 to about 500 Hz (C3/L12-19). Modified Yamawaki and Chandran et al. are concerned with the same technical difficulty, namely spray drying. It would have been obvious to one of ordinary skill in the art at the time of invention to try to use the frequency as taught by Chandran et al. in a process of modified Yamawaki which is a suitable range with a similar device.

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamawaki et al. (US 4,065,426) in view of JP 11-292978 A (see machine translation for citation) and Weiler (US 6,727,323 B2).

Regarding claim 19, Yamawaki et al. discloses a natural rubber latex is added with a coagulant to obtain crumbs of the rubber (C2/L39-49). A rubber latex may be mixed with an aqueous carbon black slurry (C2/L64-C3/L4). Additionally, water-soluble polymeric materials such as polyethylenepolyamine, polyimine, polyacrylamide may be used as a coagulating assistant (C3/L21-37). In the fourth step (d), a spray dryer may be used (C5/L5-22). Since each of the components is mixed, some agitation must take place.

However, Yamawaki et al. does not disclose spray drying under an atmosphere of a shock wave generated from pulse combustion. JP '978 teaches pulse shock wave dryer of a resin powder in claim 1. JP'978 teaches the temperature is from 40-80 °C. Yamawaki et al. and JP '978 are analogous art concerned with the same field of endeavor, namely rubber crumbs with non-tackiness which may be prepared by spray drying. It would have been obvious to one of ordinary skill in the art at the time of invention to substitute the method of spray drying of Yamawaki et al. with the method as taught by JP '978, and the motivation to do so would have been as JP '978 suggests thermal energy is low temperature compared with conventional spray drying method and desiccation and powdering of the rubber is efficient [0011].

However, Yamawaki et al. does not disclose the viscosity of the polymer composition before spray drying. Weiler teaches the viscosity of an atomizing feed is less than 500 mPa·s and more preferably less than 250 mPa·s (C6/L33-38). Yamawaki et al. and Weiler are concerned with a similar technical difficulty, namely spray-drying aqueous polymer dispersions. It would have been obvious to one of ordinary skill in the art at the time of invention to use viscosity taught by Weiler for the aqueous dispersion of Yamawaki et al., and the motivation to do so would have been the viscosity range is a suitable range with a similar device. Therefore, the work or heat efficiency of the production of the polymer from the latex thereof containing the filler would be inherently improved, absent objective evidence to the contrary.

Claims 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamawaki et al. (US 4,065,426) in view of JP 11-292978 A (see machine translation for citation) and Berg et al. (US 3,945,978).

Regarding claim 23, Yamawaki et al. discloses a natural rubber latex is added with a coagulant to obtain crumbs of the rubber (C2/L39-49). A rubber latex may be mixed with an aqueous carbon black slurry (C2/L64-C3/L4). Additionally, water-soluble polymeric materials such as polyethylenepolyamine, polyimine, polyacrylamide may be used as a coagulating assistant (C3/L21-37). In the fourth step (d), a spray dryer may be used (C5/L5-22). Since each of the components is mixed, some agitation must take place.

However, Yamawaki et al. does not disclose spray drying under an atmosphere of a shock wave generated from pulse combustion. JP '978 teaches pulse shock wave dryer of a resin powder in claim 1. JP'978 teaches the temperature is from 40-80 °C. Yamawaki et al. and JP '978 are analogous art concerned with the same field of endeavor, namely rubber crumbs with non-tackiness which may be prepared by spray drying. It would have been obvious to one of ordinary skill in the art at the time of invention to substitute the method of spray drying of Yamawaki et al. with the method as taught by JP '978, and the motivation to do so would have been as JP '978 suggests thermal energy is low temperature compared with conventional spray drying method and desiccation and powdering of the rubber is efficient [0011].

However, Yamawaki et al. does not disclose two starting material feed lines which is combined into a single line. Berg et al. teaches the carbon black dispersion and the aqueous emulsion of the rubber solution is introduced together (C6/L53-C7L5). Yamawaki et al. and Berg et al. are analogous art concerned with the same field of endeavor, namely non-tackiness rubber crumbs from rubber latex and carbon black which may be prepared by spray drying.. It would have been obvious to one of ordinary skill in the art at the time of invention to use separate feeding lines which are combined to one line per the teachings of Berg et al. in the

method of Yamawaki et al., and the motivation to do so would have been as Berg et al. suggests a continuous processing technique is economical (C1/L28-42).

Regarding claim 24, Yamawaki et al. does not disclose the time after mixing the rubber mixture and then drying. Additionally, Berg et al. teaches the residence time of the mixture to be precipitated is from 5 to 60 seconds which overlaps the claimed range (C6/L53-C7/L5). It would have been obvious to one of ordinary skill in the art at the time of invention to use the time as taught by Berg et al. in the process of Yamawaki et al., and the motivation to do so would have been as Berg et al. suggests to evaporate the solvent.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamawaki et al. (US 4,065,426) in view of JP 11-292978 A (see machine translation for citation) and Berg et al. (US 3,945,978) as applied to claim 23, and in further view of Weiler (US 6,727,323 B2).

Regarding claim 25, modified Yamawaki et al. discloses a method as shown above in claim 23.

However, modified Yamawaki et al. does not disclose the viscosity of the polymer composition before spray drying. Weiler teaches the viscosity of an atomizing feed is less than 500 mPa·s and more preferably less than 250 mPa·s (C6/L33-38). Modified Yamawaki et al. and Weiler are concerned with a similar technical difficulty, namely spray-drying aqueous polymer dispersions. It would have been obvious to one of ordinary skill in the art at the time of invention to use viscosity taught by Weiler for the aqueous dispersion of modified Yamawaki et al., and the motivation to do so would have been the viscosity range is a suitable range with a similar device. Therefore, the work or heat efficiency of the production of the polymer from the

latex thereof containing the filler would be inherently improved, absent objective evidence to the contrary.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamawaki et al. (US 4,065,426) in view of JP 11-292978 A (see machine translation for citation) and Berg et al. (US 3,945,978) as applied to claim 23 above, and further in view of Chandran et al. (US 5,842,289).

Regarding claim 26, modified Yamawaki et al. discloses a method as shown above in claim 23.

However, modified Yamawaki et al. does not disclose frequency of pulse combustion. Chandran et al. teaches a frequency of pulse combustion in a range of from about 50 to about 500 Hz (C3/L12-19). Modified Yamawaki and Chandran et al. are concerned with the same technical difficulty, namely spray drying. It would have been obvious to one of ordinary skill in the art at the time of invention to try to use the frequency as taught by Chandran et al. in a process of modified Yamawaki which is a suitable range with a similar device.

Response to Arguments

Applicant's arguments with respect to claims 1-6, 8-13, 19, and 23-26 have been considered but are moot in view of the new ground(s) of rejection.

Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICOLE M. BUIE-HATCHER whose telephone number is (571)270-3879. The examiner can normally be reached on Monday-Thursday with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571)272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Mark Eashoo/
Supervisory Patent Examiner, Art Unit 1796

/N. M. B./
Examiner, Art Unit 1796
1/27/2010